

IN THE CLAIMS:

Please cancel Claim 62 without prejudice.

Please amend Claim 7, 63 and 64 as follows:

1. (PREVIOUSLY AMENDED) A load lock that defines at least partially a first chamber and an auxiliary chamber, said load lock comprising:

a first port and a second port, said first and second ports for moving a wafer into and out of said load lock;

an elevator plate including a wafer carrier that is adapted for receiving a plurality of wafers and is attached to said elevator plate; and

said wafer carrier and said elevator plate being moveable between a first position where said wafer carrier is in said first chamber and a second position where said wafer carrier is in said auxiliary chamber and said elevator plate substantially seals said auxiliary chamber from said first chamber.

2. (PREVIOUSLY AMENDED) A load lock as set forth in Claim 1, wherein said load lock is formed at least in part by a first housing portion and an auxiliary housing portion that is removably coupled to said first housing portion.

3. (UNCHANGED) A load lock as set forth in Claim 1, wherein said wafer carrier is adapted for receiving only a pair of wafers.

4. (UNCHANGED) A load lock as set forth in Claim 1, wherein said wafer carrier includes at least an unload position and a load position.

5. (UNCHANGED) A load lock as set forth in Claim 1, wherein said wafer carrier is located on top of said elevator plate.

6. (UNCHANGED) A load lock as set forth in Claim 5, wherein said elevator plate is configured to move vertically in said load lock.

7. (TWICE AMENDED) A load lock that defines at least partially a first chamber and an auxiliary chamber, said load lock comprising:

a first port and a second port, said first and second ports for moving a wafer into and out of said load lock;

an elevator plate including a wafer carrier that is adapted for receiving a plurality of wafers; and

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said wafer carrier being moveable between a first position where said wafer carrier is in said first chamber and a second position where said wafer carrier is in said auxiliary chamber and said elevator plate substantially seals said auxiliary chamber from said first chamber, wherein said first and second ports open into said first chamber when said elevator plate is in said second position.

8. (UNCHANGED) A load lock port as set forth in Claim 7, wherein said load lock comprises a first housing portion and an auxiliary housing portion that at least partially defines the auxiliary chamber, said first and second ports being located on said first housing portion. ✓

9. (UNCHANGED) A load lock as set forth in Claim 1, wherein said first port opens into said first chamber and said second port opens into said auxiliary chamber. ✓

10. (UNCHANGED) A load lock as set forth in Claim 9, wherein said first port communicates with a wafer handling module. ✓

11. (PREVIOUSLY AMENDED) A load lock as set forth in Claim 10, wherein said load lock comprises a first housing portion and an auxiliary housing portion, said first port being located on said first housing portion and said second port being located on said auxiliary housing portion. ✓

12. (UNCHANGED) A load lock as set forth in Claim 9, wherein said second port communicates with a wafer handling module. ✓

13. (UNCHANGED) A load lock port as set forth in Claim 12, wherein said load lock comprises a first housing portion and an auxiliary housing portion, said first port being located on said first housing portion and said second port being located on said auxiliary housing portion. ✓

14. (PREVIOUSLY AMENDED) A load lock as set forth in Claim 1, wherein said first port is configured to receive said wafer carrier and said wafer carrier and said elevator plate being moveable between an outside position where said wafer carrier is outside said load lock and an inside position wherein said wafer carrier is inside said load lock. ✓

15. (PREVIOUSLY AMENDED) A load lock that defines at least partially a first chamber and an auxiliary chamber, said load lock comprising:

a first port and a second port, said first and second ports for moving a wafer into and out of said load lock;

an elevator plate including a wafer carrier that is adapted for receiving a plurality of wafers; and

said wafer carrier being moveable between a first position where said wafer carrier is in said first chamber and a second position where said wafer carrier is in said auxiliary chamber and said elevator plate substantially seals said auxiliary chamber from said first chamber wherein said first port is configured to receive said wafer carrier and said wafer carrier being moveable between an outside position where said wafer carrier is outside said load lock and an inside position wherein said wafer carrier is inside said load lock, wherein said load lock further includes a second elevator plate configured such that said second elevator plate substantially closes said first port when said wafer carrier is in said inside position.

16. (PREVIOUSLY AMENDED) A load lock as set forth in Claim 15, wherein said second port opens into said auxiliary chamber.

17. (PREVIOUSLY AMENDED) A load lock as set forth in Claim 15, wherein said second port opens into said first chamber.

18. (UNCHANGED) A load lock as set forth in Claim 1, wherein said auxiliary chamber includes inner walls that are adapted to withstand an auxiliary fluid.

19. (PREVIOUSLY AMENDED) A load lock that defines at least partially a first chamber and an auxiliary chamber, said load lock comprising:

a first port and a second port, said first and second ports for moving a wafer into and out of said load lock;

an elevator plate including a wafer carrier that is adapted for receiving a plurality of wafers; and

said wafer carrier being moveable between a first position where said wafer carrier is in said first chamber and a second position where said wafer carrier is in said

auxiliary chamber and said elevator plate substantially seals said auxiliary chamber from said first chamber, wherein said auxiliary chamber includes inner walls that are adapted to withstand an auxiliary fluid and wherein said auxiliary fluid comprises HF vapor.

20. (UNCHANGED) A load lock as set forth in Claim 1, wherein said load lock further includes heating elements.

21. (UNCHANGED) A load lock as set forth in Claim 20, wherein said heating elements are located within said auxiliary chamber.

22. (PREVIOUSLY AMENDED) A load lock that defines at least partially a first chamber and an auxiliary chamber, said load lock comprising:

a first port and a second port, said first and second ports for moving a wafer into and out of said load lock;

an elevator plate including a wafer carrier that is adapted for receiving a plurality of wafers; and

said wafer carrier being moveable between a first position where said wafer carrier is in said first chamber and a second position where said wafer carrier is in said auxiliary chamber and said elevator plate substantially seals said auxiliary chamber from said first chamber, wherein said load lock further includes heating elements and wherein said heating elements are located upon the elevator plate.

57. (PREVIOUSLY AMENDED) A system for processing substrates, comprising

a load lock chamber including a lower portion having a first inner width and an upper portion attached to the lower portion and having a narrower second inner width, the chamber including a first port and a second port, each of the ports sized to pass substrates therethrough, the load lock chamber further comprising a moveable platform configured to support at least one substrate thereon and sized to have a width less than the first inner width and greater than the second inner width to enable selectively sealing the upper portion with the at least one substrate supported thereon;

an auxiliary processing system selectively communicating with an opening in the upper chamber;

a substrate handling chamber selectively communicating with the load lock chamber through the first port; and

at least one process chamber selectively communicating with the substrate handling chamber.

58. (UNCHANGED) The system of Claim 57, wherein the load lock chamber selectively communicates with a clean room environment through the second port.

59. (UNCHANGED) The system of Claim 58, wherein the first port is located in the lower portion.

60. (UNCHANGED) The system of Claim 59, wherein the second port is located in the lower portion.

61. (PREVIOUSLY AMENDED) A system for processing substrates, comprising a load lock chamber including a lower portion having a first inner width and an upper portion having a narrower second inner width, the chamber including a first port and a second port, each of the ports sized to pass substrates therethrough, the load lock chamber further comprising a moveable platform configured to support at least one substrate thereon and sized to have a width less than the first inner width and greater than the second inner width to enable selectively sealing the upper portion with the at least one substrate supported thereon;

a substrate handling chamber selectively communicating with the load lock chamber through the first port; and

at least one process chamber selectively communicating with the substrate handling chamber, wherein the first port is located in the upper portion.

62. (CANCELED) A system for processing substrates, comprising a load lock chamber including a lower portion having a first inner width and an upper portion having a narrower second inner width, the chamber including a first port and a second port, each of the ports sized to pass substrates therethrough, the load lock chamber further comprising a moveable platform configured to support at least one substrate thereon and sized to have a width less than the first inner width and greater than

the second inner width to enable selectively sealing the upper portion with the at least one substrate supported thereon;

a substrate handling chamber selectively communicating with the load lock chamber through the first port; and

at least one process chamber selectively communicating with the substrate handling chamber, wherein the upper portion includes treatment gas injectors.

63. (AMENDED) A system for processing substrates, comprising

B3 a load lock chamber including a lower portion having a first inner width and an upper portion having a narrower second inner width, the chamber including a first port and a second port, each of the ports sized to pass substrates therethrough, the load lock chamber further comprising a moveable platform configured to support at least one substrate thereon and sized to have a width less than the first inner width and greater than the second inner width to enable selectively sealing the upper portion with the at least one substrate supported thereon;

a substrate handling chamber selectively communicating with the load lock chamber through the first port; and

at least one process chamber selectively communicating with the substrate handling chamber, wherein the upper portion includes treatment gas injectors and wherein the treatment gas injectors communicate with a source of HF vapor.

64. (AMENDED) A system for processing substrates, comprising

a load lock chamber including a lower portion having a first inner width and an upper portion having a narrower second inner width, the chamber including a first port and a second port, each of the ports sized to pass substrates therethrough, the load lock chamber further comprising a moveable platform configured to support at least one substrate thereon and sized to have a width less than the first inner width and greater than the second inner width to enable selectively sealing the upper portion with the at least one substrate supported thereon;

a substrate handling chamber selectively communicating with the load lock chamber through the first port; and

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at least one process chamber selectively communicating with the substrate
handling chamber, wherein the upper portion includes treatment gas injectors and
~~wherein the treatment gas injectors communicate with an oxidant source.~~

65. (UNCHANGED) The system of Claim 57, wherein the moveable platform includes
two shelves for supporting substrates.

66. (UNCHANGED) The system of Claim 57, wherein said first port opens into said
lower chamber and said second port opens into said upper chamber.

67. (UNCHANGED) The system of Claim 57, wherein said first port opens into said
upper chamber and said second port opens into said lower chamber.

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COMMENTS

In response to the Office Action mailed November 28, 2001, Applicants respectfully request the Examiner to reconsider the above-captioned application in view of the foregoing amendments and the following comments. As a result of the amendments listed above, Claims 1-61 and 63-67 are pending, Claims 23-56 have been withdrawn as directed to a non-elected invention, Claim 62 has been canceled. In this amendment, Claims 7, 63 and 64 have been amended.

The specific changes to the specification and the amended claims are shown on a separate set of pages attached hereto and entitled **VERSION WITH MARKINGS TO SHOW CHANGES MADE**, which follows the signature page of this Amendment. On this set of pages [or page], the insertions are underlined (e.g., insertions) while the deletions are in bold between brackets (e.g., [deletions]).

1. Objected to and Allowed Claims 12, 14, 22, 59, 60, 61 and 67

Applicants note with appreciation that Claims 12, 14, 59, 60 and 67 are objected to as being dependent upon a rejected base claim and that the Examiner indicated that these claims contain patentable subject matter and would be allowable if rewritten into independent form. As explained below, Applicants believe that the base claims are in condition for allowance. Therefore, at this time, Applicants have declined to convert these claims into independent form.

Claims 22 and 61 are allowed.

2. Objections to the Drawings

The drawings are objected to because reference character "20j" is used in Figures 12 and 13 while the specification refers to reference character "20i". In response to this objection, Applicants are submitting a proposed drawing amendment, which addresses this objection. This proposal by Applicant for amendment of the drawings to address informalities is embodied in: (a) *a separate letter to the Draftsperson* in accordance with M.P.E.P. § 608.02(r); and (b) proposed drawing corrections shown *in red* on copies of previously filed Figures 12 and 13 in accordance with M.P.E.P. § 608.02(v). No new matter is introduced by these proposed drawing changes.

The drawings are also objected to because the reference character "26" has been used to designate the load lock chamber and the elevator plate. The foregoing amendment to the specification corrects this informality.

3. Claims 1-11, 13, 15-21, 57, 58 and 62-66

Claims 1-11, 13, 15-21, 57, 58 and 62-66 all stand rejected under 35. U.S.C. 103(a) as being unpatentable over Wytman (EP 0834907 A2). As set forth below, Applicants respectfully disagree with the rejections of these claims

A. Claims 1-6, 9-11 18 and 20, 21

Independent Claim 1 recites that the elevator plate includes "a wafer carrier that is adapted for receiving a plurality of wafers and is attached to said elevator plate." The Examiner states that it "would have been obvious to attach the Wytman wafer carrier to the elevator plate." The motivation for attaching the wafer carrier to the elevator plate being "to insure that the wafer carrier would not tip over during transfer between Wytman's upper chamber 12 and lower chamber 14."

Applicants respectfully submits that Wytman teaches away from such a modification. Wytman is directed to a load lock unit for transferring a wafer cassette. *See* Col. 1, lines 3-5. As shown in Figure 1 of Wytman, such cassettes are quite large and are configured to support a large number of wafers. Because of their size and weight, these cassettes do not tend to tip over and thus there is no need or motivation to attach the cassette to the elevator plate. Moreover, attaching a cassette to the elevator plate would eliminate one of the advantages of a cassette, which is that the cassette can be removed from the load lock and used to store wafers. For at least these reasons, Applicants respectfully submit that one of ordinary skill in the art at the time of the invention would not have modified Wytman as suggested by the Examiner.

Claims 2-6, 9-11, 18, 20 and 21 are also in condition for allowance because they depend from allowable Claim 1 and recite additional patentable subject matter.

B. Claims 7-8

For at least the reasons set forth in Applicants previous Amendment dated September 5, 2001, Applicants respectfully disagree with the rejection of these claims. Nevertheless, to advance prosecution of the present application, Applicants have amended these claims to more particularly

and distinctly claim Applicants' invention. Applicants reserve the right to pursue Claims 7-8 in their original form in a continuing application.

As amended, Claim 7 now recites a load lock wherein the "first and second ports open into said first chamber when said elevator plate is in said second position." Wytman does not teach or suggest a load lock with the above noted limitations. Rather, in Wytman, the loading door 16 opens into a first chamber 12 while the valve 18 opens into the lower chamber 14. See Column 6, lines 2-11 and Figures 1-3. Moreover, because the sub-chamber 30 is moveable, it would not have been obvious to modify Wytman in such a manner. For at least this reason, Applicants respectfully submit that amended Claim 7 is in condition for allowance.

Claim 8 is also in condition for allowance because it depends from allowable Claim 7 and recites additional patentable subject matter.

C. Claims 15-17

In rejecting Claim 15, the Examiner admits that Wytman does not teach a load lock with a second elevator plate. Instead, the Examiner cites M.P.E.P. 2144.04 for the legal precedent that a reproduction of an apparatus component is obvious and concludes that adding a second elevator plate to Wytman would therefore be obvious. However, the second elevator plate is not a mere reproduction of an apparatus component because the second elevator plate has an entirely different function than the first elevator plate. Specifically, the first elevator plate substantially seals the auxiliary chamber from the first chamber when the wafer carrier is in a second position. In contrast, the second elevator plate closes the first port when the wafer carrier is in the inside position. "If the applicant has demonstrated the criticality of a specific limitation, it would not be appropriate to rely solely on case law as the rationale to support an obviousness rejection." M.P.E.P. 2144.04

Claims 16 and 17 are also in condition for allowance because they depend from allowable Claim 15 and recite additional patentable subject matter.

D. Claims 19 and 62 64

Claim 19 recites, in part, a load lock "wherein said auxiliary chamber includes inner walls that are adapted to withstand an auxiliary fluid and wherein said auxiliary fluid comprises HF vapor." In contrast, Wytman discloses a load lock, which is configured to heat and degas the wafer with an inert gas (e.g., Argon or Nitrogen). See Column 7, lines 50-60. Moreover, in

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Wytman, the wafers are stored within a cassette while in the load lock. Such cassettes are not configured for withstanding processing gases, such as, for example, HF vapor. As such, one of ordinary skill in the art would not have been motivated to adapt the load lock of Wytman to withstand HF vapor. Therefore, Applicants respectfully submit that Claim 19 is in condition for allowance.

In a similar manner amended Claim 63 and 64 are also in condition for allowance. Specifically, Claim 63 recites in part, a load lock wherein "the treatment gas injectors [in the upper chamber] communicate with a source of HF vapor." Claim 64 recites in part, a load lock wherein "the treatment gas injectors [in the upper chamber] communicate with an oxidant source." For the reasons set forth above, one of ordinary skill in the art would not be motivated to modify the load lock of Wytman to include, among other things, the above noted limitations.

To advance prosecution of this matter, Claim 62 has been canceled. Applicant reserves the right to pursue Claim 62 in a continuing application.

E. Claims 57, 58, 65, 66 and 67

Claim 57 recites, in part, a system for processing wafers that comprises "a load lock chamber including a lower portion having a first inner width and an upper portion attached to the lower portion". Wytman does not teach or suggest a load lock with the above noted limitations. Rather Wytman discloses a moveable sub-chamber 30 to facilitate loading and unloading of an entire cassette 11. In addition, the Examiner has not identified a motivation for modifying Wytman to include such a feature. Thus, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that Claims 57-60 and 65 are in condition for allowance.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that the rejections set forth in the outstanding Office Action are inapplicable to the present claims and specification. Accordingly, early issuance of a Notice of Allowance is most earnestly solicited.

The undersigned has made a good faith effort to respond to all of the rejections in the case and to place the claims in condition for immediate allowance. Nevertheless, if any undeveloped


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issues remain or if any issues require clarification, the Examiner is respectfully requested to call Applicant's attorney in order to resolve such issue promptly.

Respectfully submitted,

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